Abstract: This invention is a tool for computer-aided design, computer-aided manufacturing forming a Project Management System, comprising: (1) a Component Database; (2) a Component Data Management System; (3) a Design and Manufacturing System; (4) an Assembly Drawing Generator; (5) a Bill of Materials Generator; and, (7) a Project Database. The Project Manager tracks the process and actions, recording and supervising version and change order compliance and task completion, from the start through verification of a production-ready finished version. Each project uses a master workbench. On it design specifications are entered for each subassembly element and connector. Then the user consults the Component Database using a Search and Cross Reference engine for components meeting those design specifications, until a constraint-satisfying design is completed. The tool generates a Bill of Materials, Assembly Drawings, and process records for the project in process.